# Puerto Rico Address Data Workshop Minutes

Sponsored by the White House National Science and Technology Council's Subcommittee on Disaster Reduction (SDR)

Eisenhower Executive Office Building, Room 430
1650 Pennsylvania Avenue NW, Washington, DC
October 3, 2018



| Related Documents/Links |
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| 1. Reference 1. List of Attendees<br>2. Reference 2. Workshop Agenda<br>3. Reference 3. Presentations (all)<br>4. Reference 4. White Paper. "Meeting the Challenge of Puerto Rican Style Addresses," 2009.<br>5. Reference 5. *The Opportunity Project: Geo-Cohort Sprint Information.*<br>6. Link to the National Address Database: https://www.transportation.gov/nad<br>7. Link to the ReImagine Puerto Rico report: http://www.resilientpuertorico.org/en/reports-2/ |

# I. Executive Summary

## a. Background

Many federal agencies are assisting with recovery in Puerto Rico (PR) following Hurricane Maria in September 2017. Addresses for residents and businesses are essential information for almost all efforts to administer aid for recovery or to assist with plans for future preparedness and response. Agencies struggle to implement their programs due to the unique aspects of PR addresses compared to more familiar stateside address systems. One of the lessons learned from the 2017 Hurricane Season, especially in PR, is that the development of a National Address Database (NAD) needs to be a key priority at all levels of government.

## b. Workshop Goal and Objective

Goal: Exchange information and knowledge, pertaining to managing PR data, to identify a path forward to successfully achieve our missions in PR.

Objective: Share and discuss challenges, successes, and proposed solutions for utilizing and managing PR address data.

## c. Workshop details

The workshop was held for federal agencies and there were 39 participants from 12 federal agencies in attendance. Please see *Reference 1* for a list of participants.

The following nine participants gave presentations:

- Eric Soucie, Chief, Deputy Planning and Preparedness Section, Office of National Capital Region Coordination, Federal Emergency Management Agency (FEMA).
- Miguel Roman, Terra/Aqua/Suomi-NPP Land Discipline Group Lead, Terrestrial Information Systems Laboratory, National Aeronautics and Space Administration (NASA).
- Kerry Sefton, Agriculture Program Specialist, Farm Service Agency (FSA), U.S. Department of Agriculture (USDA.
- Stuart Irby, Chief, Address Standards, Criteria, and Quality Branch (ASCQB), Geography Division, U.S. Census Bureau.
- Tanya Sadrak, ASCQB, Geography Division, U. S. Census Bureau.
- Robert Renner, Social Science Analyst, Department of Housing and Urban Development (HUD).
- Mikhael Schlossman, Data Governance, FEMA.
- Christopher (Scott) Shoup, Chief Data Officer, FEMA.
- John Liadis, Chief, Geographic Research and Innovation Staff, Geography Division, U.S. Census Bureau.

The workshop agenda was organized to showcase agency methodologies or products that are used to assist with managing PR address data and a panel discussion to provide insights on the presented material on managing and utilizing PR address data. Each presentation session allowed time for discussion afterwards. The presentations are available as a PDF attachment (*Reference 3)*.

## d. Workshop conclusion

### General

- Address and location information in a National Address Database (NAD) is important for the National Disaster Recovery Framework (NDRF) from pre-disaster to long-term recovery and is a challenge.
- Currently, the NAD has address information from 20 states and 45 million records, and an additional 9 million from Texas coming soon.
- There is no centralized address database for PR. There is potential for innovation, new data sources, and methodologies, to add PR address fields to the NAD schema.

### Main areas of consideration

- Federal address management systems need to change to accommodate PR data. The solution, however, should not depend on the federal government alone.
- Addressing in PR may be related to the age of the community, and this is the key to understanding how municipalities operate during local emergencies. Workshop presenters pointed out examples of terminology applied to historical land use, history of land itself, and infrastructure (i.e., urbanización).
- In PR's historical housing developments, an understanding of the age of the structure is also necessary.
- Agencies require geographies that are smaller than the census block level. For instance, broadband agencies need parcel level data. The NAD needs to extend beyond the concept of a single address linked to a single house or structure, since an individual may have a preferred address for mailing and a different address for other civic functions.
- Private industry anticipates that the federal government will do the data collection and aggregation for the NAD as an authoritative source for address data. With many different data types and independent sources, federal agencies face funding challenges to aggregate, normalize (standardize), and perform quality controls on the data so that it can be shared.

### Way forward

- The White House National Science and Technology Council offered the assistance of the Subcommittee on Disaster Reduction (SDR) as a coordinating body for a Puerto Rico address working group.
  - This working group will be formed with an agency champion to develop federal address requirements, best practices and recommendations for managing PR data.
- An inventory of the data discussed at the workshop, as well as a call to other federal agencies managing PR data, will be developed.

## II. Record of Discussions

### a. Welcome and structure of the workshop

Jacqueline (Jack) Meszaros, White House Office of Science and Technology Policy (OSTP)
The participants were welcomed to the workshop and the role of the workshop sponsor, the OSTP Subcommittee on Disaster Reduction (SDR), was described as bringing this federal community together and providing support for the efforts and conversations related to addresses and information sharing for disaster response.

Michael Ratcliffe, Assistant Division Chief, Geographic Standards, Criteria, Research, and Quality, U.S. Census Bureau (Census Bureau)
The objective and goal were identified to participants as an exchange of information and knowledge during this workshop to identify a path forward. The workshop was not developed to set policy today, but to discuss potential solutions, best practices, and ideas to work together.

### b. Presentations on challenges and successes

- Eric Soucie, Federal Emergency Management Agency (FEMA). *Survivor Assistance and Address Challenges in Puerto Rico*.
  - This presentation showcased a first-hand summary of post-Maria survivor assistance, beginning in late November 2017, from the field perspective.
  - With limited budget, the team was not able to rely on their usual methods to expedite damage assessments. They were unable to match where people registered for assistance with the remote sensing-based assessments, classification standards, and/or Geographic Information System (GIS) modelling typically used by FEMA.
  - The use of Parcel data--Centro de Recaudación de Ingresos Municipales (CRIM)—and the Puerto Rico Electric Power Authority (PREPA) billing data was difficult to match to geospatial data, address, and/or owner.
  - FEMA used disaster survivor assistance teams to get names, address matches, etc. since overall, mail drop/boxes did not match with building structures.
  - An address database would have helped immensely to distribute grants and funds after Hurricane Maria.
  - FEMA projects a long-term 2-3-year development cycle to create a registration system in PR.

- Miguel Roman, National Aeronautics and Space Administration (NASA). *Association Between Remoteness and Loss of Energy Services in Puerto Rico after Hurricane Maria.*
  - NASA participated as a Communities and Areas of Intensive Risk (CAIR) partner, and provided earth observation data and visualizations of PR's energy sector to track recovery of energy services after Hurricane Maria.
  - Open GIS, Landsat data (30-m resolution), and proxy night-light intensity change detection from Suomi National Polar-orbiting Partnership/NPP Visible Infrared Imaging Radiometer Suite/VIIRS data were used for this analysis.

- Space assets were integrated with socioeconomic data such as Census Bureau's American Community Survey (ACS) data to assess community level vulnerability and remoteness (i.e., access to electricity, health care).
- There was heterogeneity in recovery of the San Juan area--discontinuity block by block. Many areas experienced over 120 days without electricity, particularly the Southeastern coast of PR and rural communities adjacent to large urban areas, took longer to recover.

- Kerry Sefton, Department of Agriculture Farm Service Agency (FSA). *Puerto Rico Address Data Workshop: MIDAS CRM.*
  - The *Modernize and Innovate the Delivery of Agricultural Systems* (MIDAS) program collects customer business partner information, tax IDs, demographic and social statistics in order to deliver assistance to farmers, ranchers, and producers directly from FSA and Natural Resources Conservation Service (NRCS) field offices.
  - Their farm records, including tabular and geospatial data of field boundaries, owners and operators of farms, and death records, require validation to ensure that the recipients are correctly identified for this assistance.
  - FSA uses US Postal Service (USPS), Internal Revenue Service (IRS), and Social Security Administration (SSA) records for validation.
  - During the Hurricane Maria recovery, customers applied directly (in person) at the municipio offices. Non-validated addresses did not have an effect on the FSA response.

- Stuart Irby and Tanya Sadrak, Census Bureau. *Puerto Rico Address Processing at the Census Bureau.*
  - The Census Bureau's Master Address File (MAF) has 2.6 million housing units in PR. Many housing units in PR do not have a mailing address and/or geographic coordinates associated with a physical location or structure.
  - Four basic address types (General/Basic Street, Urbanización (URB), Apartment Complex, Area Name) are accommodated in the MAF in addition to USPS Highway contract and Rural Route addresses.
  - In addition to regular updates from the U.S. Postal Service (i.e., Delivery Sequence File (DSF), etc.), programs such as the Geographic Support System (GSS) partnership program, and the Local Updates of Census Addresses (LUCA) provide updates to the MAF.
  - Addresses are parsed upon receipt, and enhanced/specific matching rules are applied. If an exact match is not possible, an equivocated match, using in-house string comparators and other algorithms, is used.

- Robert Renner, Department of Housing and Urban Development. *Lessons Learned from HUD's Puerto Rico Address Cleansing Project.*
  - HUD funds community development projects, (i.e., rental assistance, mortgage insurance, ownership over property after foreclosure, community grants), and needs property addresses and demographic data for assessment, evaluation, and monitoring.

- HUD has been limited by address parsing software that does not accommodate PR-style addresses. (Please see *Reference 4*: White Paper developed by Digital Media Creations entitled *Meeting the Challenge of Puerto Rican Style Addresses*, 2009).
- HUD's Office of Community Planning and Development provided funding to Digital Media Creations (DMC) to improve the quality of addresses and to make recommendations on how HUD collects address data.
- DMC was able to verify 86 percent (up from 2 percent) of their public housing units through address cleansing using their database of mailable addresses for PR.
    - The data cleansing was a manual operation performed by analysts for 83 percent of the addresses provided. Of these, they were unable to obtain accurate geocodes, or these were collected after the fact.

- Mikhael Schlossman, Federal Emergency Management Agency. A FEMA Perspective on Addresses.
    - FEMA's goal from a data governance and management perspective is to increase data interoperability across all areas of their mission in order to improve speed and accuracy of emergency management decisions.
    - Address information is important throughout the National Disaster Recovery Framework (NDRF) from pre-disaster to long-term recovery and is a whole community challenge.
    - FEMA needs interoperable information such as physical geography, political boundaries, addresses, parcels, coordinates to transact with data to help make quick emergency management decisions for search and rescue, floodplain management, mitigation, response, and recovery.

c. <u>Lightning talks - Leveraging data</u>

- Scott Shoup, Federal Emergency Management Agency. *OpenFEMA program – IA Data.*
    - FEMA's open government program "OpenFEMA" is designed to work with non-profits to help smooth applications to HUD Community Development Block Grants (CDBG).
    - FEMA's API publishes data on self-reported income and FEMA-verified loss at lowest level of geography/granularity possible without compromising privacy. Housing coalitions requested data for PR, and were able to use the API to apply for CDBG grants.

- John Liadis, Census Bureau. Linking Addresses to Structures.
    - Census Bureau demonstrated the analysis of the 2009 CRIM data (parcels, roads, building outlines) and the 2017 building structures data from Humanitarian OpenStreetMap Team (HOT) and Oak Ridge National Laboratory (ORNL). A PR-centric change detection analysis linking addresses to structures was used.
    - Addresses (non-Title 13) derived from water utility map spots can be combined with open source and commercial parcel and structures data (including recent Google Street view) to update existing data.

## d. Panel discussion - Where do we go from here?

Presenters and participants provide insights for managing and utilizing Puerto Rico address data

- NEW TOOLS AND SOURCES FOR THE PR DATA:
    - Department of Education maintains a directory of public schools in the United States. This yearly publication is public and can be shared.
    - A challenge grant could provide new opportunities for private industry to provide new sources of address data. USPS, UPS, Amazon, FedEx are all major vendors that collect address information and could geocode locations where they have dropped off a package. Redfin, Zillow, OpenStreetMap are other sources, but require terms of service and/or data use agreements.
    - National Structures Inventory through U.S. Army Corps of Engineers (USACE) has brokered a deal with Zillow. FEMA and ORNL are also testing this data.
    - Crowdsourcing and citizen science are working on a generic information collection request that can be used to leverage volunteer efforts, and resolve copyright issues. For instance, USGS cannot use (OSM) due to restrictions on attribution.
    - National Geospatial-Intelligence Agency (NGA) is currently using NOME—NSG (National System for Geospatial Intelligence) Open Mapping Enclave (NOME) program--where federal or civil employees (not the general public) can contribute to this database.
    - TomTom and Spatial Networks are developing tools as part of The Opportunity Project (TOP) to leverage open federal data and develop data collection and validation tools.
        - This includes tools to assign alternate addresses that are based on the U.S. National Grid in states and island areas that do not have a typical street names and addresses (see problem statement in Reference 5 entitled "Helping Tribal, State and Local Governments with Local Address Data Collection").
    - iCasa, a civic organization with representatives from public and private industry in Puerto Rico, is also a participant in TOP.
    - The Municipio of Caguas has developed a plan for assigning consistent addresses with no duplicate road names. Community outreach and a committee of PR agencies has been formed, with some financial backing from HUD, to create an island-wide addressing system (based on the Caguas methodology) and file of addresses.
    - Need to think about using philanthropic organizations, they would like to assist but they don't know what questions to ask, or the tools to be used, or how to fix the issue, but they have money and want to help.

- PLANNED OUTREACH OPPORTUNITIES:
    - Community planning and capacity building pilots have been conducted in the US Virgin Islands.
        - In March 2019 USVI will present their pilots at a conference with FEMA support.
    - NASA has funding and a venue in the Caribbean to coordinate future PR workshops.
    - National Telecommunication and Information Administration (NTIA) invited NAD developers to speak at Broadband meeting with 38 states on NTIA Broadband issues.

## e. Action Items

Summarize key points and recommended solutions, Michael Ratcliffe, Meeting Facilitator

| Task | Action | Responsible Party | Expected Completion | Status |
|---|---|---|---|---|
| Organize a working group with support from White House National Science and Technology Council's Subcommittee on Disaster Reduction (SDR). | Identify the PR Address Working Group Champion and participants through survey response. | Census Bureau | 10/26/18 | In progress |
| Inventory Puerto Rico data that is shareable from workshop participants. | Do a survey of workshop participants to inventory data formats, provenance, scale, etc. | Census Bureau | 10/19/18 | In progress |
| Develop an address standard and best practices for Puerto Rico. | Conduct a Data Integration Standardization Pilot Project. | PR Address Working Group Champion | 11/30/18 | In progress |
| Share a list of workshop attendees, notes, and presentations. | Send meeting notes, attendee list, and presentations to PR Address Data Workshop attendees. | Census Bureau | 10/19/18 | Completed |
| Share Census Bureau's algorithms used to standardize and/or parse Puerto Rico addresses. | Census Bureau will send FEMA the algorithms used for Puerto Rico Addresses. | Census Bureau | 10/9/18 | In Progress |
| Share 2020 Census Local Update of Census Addresses Operation (LUCA) Block Counts. | Census Bureau will send NIST the LUCA Block Counts. | Census Bureau | 10/4/18 | Completed |
| Share Census Bureau's methodology to link address data to structures. | Census Bureau will attend a meeting with FEMA to share research methodology for building structures data. | Census Bureau | 10/9/18 | Completed |
| Refine the narrative for public outreach to increase public awareness of the need for an address database in Puerto Rico. | Census Bureau and FEMA will develop human interest stories to convey to the downstream effect of inefficient deliveries of federal services due to lack of PR Addresses. | Census Bureau Mikhael Schlossman | TBD | TBD |